

What is claimed is:

1. A (meth)acrylic copolymer, which comprises a constitutional unit (a) derivative from a (meth)acrylic monomer (A) of a general formula (1) below and a
 5 constitutional unit (b1) derivative from a (meth)allyl-etheric monomer (B1) of a general formula (2) below and has a phosphorus atom in the main chain;

with the (meth)acrylic copolymer having:

a mutual ratio between the constitutional unit (a) and the constitutional unit
 (b1) in the range of the constitutional unit (a) 80 to 96 mol % and the constitutional
 10 unit (b1) 4 to 20 mol %; and a weight-average molecular weight in the range of 500 to 4,000; and

a weight P1 of phosphorus atoms as bonded to the copolymer and a weight P2 of phosphorus atoms as not bonded to the copolymer satisfy a relationship of $0.9 \leq P1/(P1 + P2) \leq 1.0$; and further

15 a gelation resistance of not more than 0.02 and a calcium-ion-binding ability of not less than 150 mgCaCO₃/g;

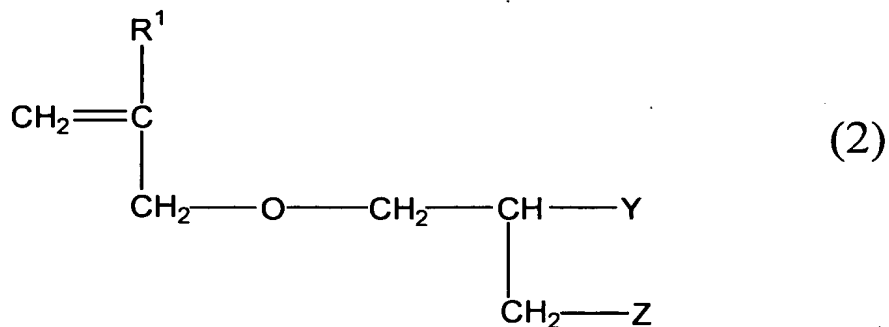
wherein the general formula (1) is:



20

(wherein: R¹ denotes a hydrogen atom or a methyl group; and X denotes a hydrogen atom, a metal atom, an ammonium group, or an organic amine group); and

wherein the general formula (2) is:



(wherein: R^2 denotes a hydrogen atom or a methyl group; and each of Y and Z independently denotes a hydroxyl group or a sulfonic acid group (wherein the sulfonic acid group may be in the form of a monovalent metal salt, a divalent metal salt, an ammonium salt, or a salt of an organic amine group) wherein at least one of Y and Z is the sulfonic acid group).

2. A (meth)acrylic copolymer according to claim 1, wherein the mutual ratio between the constitutional unit (a) and the constitutional unit (b1) is in the range of the constitutional unit (a) 87 to 96 mol % and the constitutional unit (b1) 4 to 13 mol %.

3. A (meth)acrylic copolymer according to claim 1, wherein the total content of the constitutional unit (a) and the constitutional unit (b1) in the entire constitutional units of the copolymer is in the range of 93 to 100 mol %.

4. A process for producing a (meth)acrylic copolymer, which comprises the step of carrying out a copolymerization reaction of monomer components in the presence of hypophosphorous acid (salt) and a polymerization initiator to thereby produce the (meth)acrylic copolymer having a phosphorus atom in the main chain, wherein the monomer components include a (meth)acrylic monomer (A) of a general formula (1) below;

wherein the hypophosphorous acid (salt) begins to be supplied into the

polymerization system earlier than the polymerization initiator;

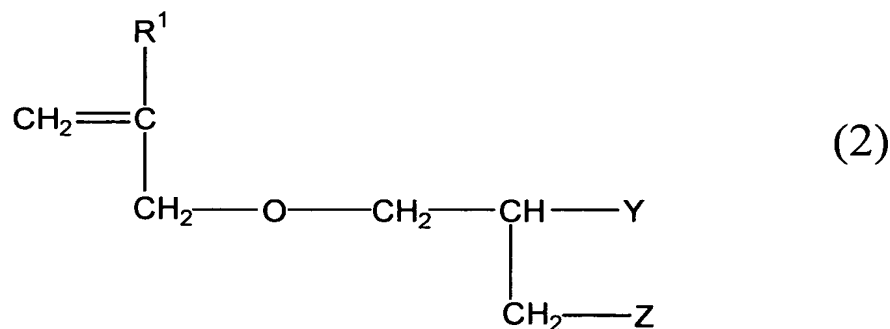
wherein the general formula (1) is:



5

(wherein: R^1 denotes a hydrogen atom or a methyl group; and X denotes a hydrogen atom, a metal atom, an ammonium group, or an organic amine group).

5. A process for producing a (meth)acrylic copolymer according to claim 4,
10 wherein the monomer components further include a (meth)allyl-etheric monomer (B1) of a general formula (2) below:



- 15 (wherein: R^2 denotes a hydrogen atom or a methyl group; and each of Y and Z independently denotes a hydroxyl group or a sulfonic acid group (wherein the sulfonic acid group may be in the form of a monovalent metal salt, a divalent metal salt, an ammonium salt, or a salt of an organic amine group) wherein at least one of Y and Z is the sulfonic acid group).

20